#19 IOOS Coastal and Ocean Modeling Testbed for Puerto Rico and the Virgin Islands

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U.S. IOOS is currently funding a new cycle of the Coastal and Ocean Modeling Testbed (COMT). One of the five projects included is a wave, surge and inundation testbed for Puerto Rico (PR) and the U.S. Virgin Islands (USVI). The U.S. island regions in the Caribbean and Pacific pose many challenges to the accurate modeling of hazardous wave-dominated storm surge inundation events along reef-fringed coastlines. As a result, NOAA/NWS currently lacks an operational inundation prediction system capable of forecasting these conditions. Model evaluation depends on data from island areas, and Puerto Rico and the U.S. Virgin Islands frequently experience strong tropical and extra-tropical storms resulting in high waves, storm surge, and river flooding. A large number of observational instruments have been deployed in this region, including the CariCOOS network, NOAA's NWLON, the Puerto Rico Seismic Network (PRSN) and short-term research deployments. The IOOS COMT PR/USVI project aims to utilize this observational infrastructure, as well as the COMT's extensive cyber-infrastructure, to compare a number of state-of-the-art wave and surge models (incl. ADCIRC+SWAN, SLOSH+SWAN, Delft3D+SWAN, ADCIRC+WW3) in terms of accuracy and computational efficiency against a series of local and regional scale field cases. The ultimate goal is to identify new science or techniques which have applications for the operational environment at NWS's National Hurricane Center and Weather Forecast Office in San Juan. This presentation will discuss the field cases selected for the testbed (H. George 1989, H. Isaac 2012, S. Sandy 2012), give an overview of the wave and surge models taking part in the comparison, and present first modeling results.